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Practices of ambiguity: becoming “information literate” in two Norwegian schools

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Abstract

The purpose of this study is to examine the establishment of information literacy (IL) practices among secondary school pupils aged 14 to16 (grades 9-10) in two Norwegian schools. In Norway, a new curriculum introduced in 2006 emphasised digital skills, aiming to develop IL relating to digital texts in particular. Despite the fact that an ambitious national curriculum has been in place for quite some time, not much is known about how this works in practice in the subject group of this study. The main purpose of this article is to identify the kind of IL practices that have been established and how the pupils experience and reproduce these practices.

It seems that the pupils become information literate but not to the extent the curriculum anticipates. The study used mixed methods in order to reveal general trends and to explore certain issues in more depth. The material consists of data from a questionnaire and interviews. The study has a sociocultural perspective as its theoretical point of departure, resting on an understanding of how IL practices in school are formed through interaction and/or the lack of interaction between pupils and their teachers. Without interaction guiding the pupils, their IL practices are at the risk of becoming practices of ambiguity. The implications of this study is that one must go beyond national curricula and examine the way IL or digital literacy is actually performed in schools in order to understand how these practices are shaped.

Keywords

secondary schools, high schools, 14 to 16 year olds, sociocultural perspective, mixed methods, information literacy practices, digital skills, Norway

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1. Introduction and problem statement

Information literacy (IL) is often argued to be as essential as basic reading and writing, and being information literate is seen as crucial to being able to participate in modern society; “accessing and evaluating information are basic skills required for success in work and personal contexts” (Julien and Barker 2009, p. 13). New technology has introduced new ways of working in schools. Instead of just reading textbooks, pupils are required to search for information elsewhere – often on the internet – and transform this into knowledge and be able to evaluate the information they find and engage in source criticism. Previous research has identified discrepancies in a number of areas related to the issue of teaching IL in schools. Discrepancies are found between new curricula on IL and actual competencies, what teachers believe their pupils need to know or what they already know, and what the pupils themselves actually know (Almås and Krumsvik 2007; Williams and Wavell 2007; Julien and Barker 2009; Ladbrook 2008; Krumsvik 2011; Vanderlinde and van Braak 2011; Miller and Bartlett 2012). A focus on IL is noticeable in several countries around the world where national or local school curricula include development of IL or digital literacy. Nevertheless, despite emphasis on the importance of IL and IT skills in the past decade, research has shown that students at different educational levels from primary school to postgraduate level in general lack competence in these areas (Chu et al. 2011, p. 133).

Hence, even when a curriculum is in place, the pupils do not necessarily become information literate as anticipated in the curriculum, and this is a key theme of the current article. In Norway in 2006, a new curriculum known as *The Knowledge Promotion* (*Kunnskapsløftet*) or LK06 placed focus on IL, or more specifically on digital skills, as a fifth basic skill that should be taught in primary and secondary school (from grade 1 to 10) (UDIR 2012). This article aims to examine in what way Norwegian pupils in grades 9 and 10 (14 to 16 years old) talk about information searching and practices related to that, such as relevance judgments and source criticism. The empirical examples relate to both digital and print information, with an emphasis on the former. The main question guiding this inquiry is: How do pupils in lower secondary school become information literate in a school context according to their own experiences?

2. Theoretical framework and literature review

This section presents the theoretical framework of the study, which rests upon an understanding of information literacy (IL) in a sociocultural perspective. Previous research on various aspects of IL in school will be presented, focusing on curricula, teachers' attitudes and the pupils' knowledge.

2.1 Information literacy and a sociocultural perspective

Most definitions of IL are related to a set of skills which is "required to identify information sources, access information, evaluate it, and use it effectively, efficiently, and ethically" (Julien and Barker 2009, p. 12). Hence, definitions of this concept have often focused on the ability to make a judgement of an information need and subsequently be able to define, find, value and use this information (see UNESCO's definition cited in Catts and Lau 2008, p. 7; Lloyd and Williamson 2008, p. 4; Leichner et al. 2014). With technical development, this definition has been broadened to encompass information and communication technologies (ICT) more specifically: "the ability to locate, 'read', and manage information within a range of printed, electronic, visual texts and ICT networks; to critically evaluate information; and to communicate information clearly via spoken and written language while mediating social networks and relationships" (McTavish 2009, p. 6). This understanding of IL seems to be reproduced in schools and in national curricula on IL and the related concept digital literacy. In practice, when talking about digital literacy, there seems to be an overemphasis on the technical side of information seeking and use, and less focus on content, critical evaluation and discussion on how and where one searches for information and how one should use it (Erstad 2011).

The overall focus of this study is on IL and in a sociocultural perspective IL is not "something that can be reduced to a few general skills which can be measured in an unproblematic way" (Lundh and Limberg 2008, p. 93). From this follows that this study considers IL as literacy implying knowledge and critical thinking, as well as certain skills. From a LIS perspective we might talk about digital literacy as a part of IL (such as"dimensions" relating to an "ICT-based environment" in Audunson and Nordlie 2003, p. 320) whereas within the educational sector in Norway, the term IL has not been used. Instead, here the focus is on what other researchers have referred to both as digital literacy and as digital competence (Krumsvik 2009, 2011; Erstad 2011). However, in the English translation of the Norwegian Directorate for Education and Training's (UDIR) *Framework for Basic Skills*, this is called "digital skills" (UDIR 2012), thus adding to conceptual confusion.

Nevertheless, in the educational sector, nothing is purely digital, and pupils are expected to be able to find and use information both from the library (defined as print resources) and from the internet (also known as digital resources). For instance, at the time this study was conducted, one of the competence aims after ten years of schooling in the subject Norwegian language was that the pupils should be able to use texts found in the library, internet or mass media in a critical way, discuss the texts and refer to the sources used (UDIR [n.d.]) – what we might otherwise call IL. Similar demands are found in subjects such as history or sociology, where pupils are supposed to discuss a certain issue through searching for information in unspecified sources and critically assess the information. Therefore, even though IL as such is not mentioned in the Norwegian curriculum, it is implicit in many subjects. It is hence difficult to make clear boundaries between IL

and digital skills/digital literacy – these are both practices "linked to schooling and classroom practices" (Erstad 2011, p. 297).

Previous research has underlined that information seeking is something that is not learnt in isolation, or by oneself, but rather emerges through interaction: dialogue, collaboration and continuous feedback (Alexandersson and Limberg 2012). Kuhlthau (2004) also underscored this point when holding that conversation or dialogue are important as parts of the information-seeking process as this helps us articulate and develop our questions and information needs. This is further related to concepts such as interaction and meaning making. Furberg and Arnseth (2009, p. 161) point out that "[m]eaning is dialogically constituted in specific practices, and meaning making involves complex interactions between people, resources, and the organization of the setting." One way to emphasise these interactional and meaning making aspects of IL is to consider IL in a sociocultural perspective.

A central claim in a sociocultural perspective "is that human action typically employs 'mediational means' such as tools and language, and that these mediational means shape action in essential ways" (Wertsch 1991, p. 12). According to Sundin and Francke (2009) "[s]uch an approach stresses people's habitual interaction in a social world through the use of intellectual and physical tools". A strength with a sociocultural perspective, then, is that we may emphasise interaction, between individuals and communities as well as between persons and tools such as databases, devices or software. Learning does not happen in a vacuum, and depends on interaction, meaning making and the use of previous experiences (Säljö 2000; Furberg and Arnseth 2009). This obviously also applies to learning how to search for, use and evaluate information. Commonly found in studies holding a sociocultural perspective is the view that IL should rather be seen as literacies, not literacy. The plural underscores the idea that we ought not to consider IL as a fixed set of skills that may straightforwardly be transferred from one setting to another, but as socio-technical practices depending on the given social setting (Säljö 2000; Lundh and Limberg 2008; Sundin and Francke 2009; Furberg and Arnseth 2009; Francke et al. 2011). Various communities have their own practices and, as pointed out by Sundin and Francke (2009):"[b]ecoming information literate in upper secondary school is/../something different from becoming information literate in, for instance, an online gaming community".

Another important insight from the sociocultural approach is the claim that mediational means are inherently related to action. "Only by being part of action do mediational means come into being and play their role. They have no magical power in and of themselves." (Wertsch 1991, p. 119). Related observations have been made in analyses of Norwegian ICT policy documents, as they often "given an impression that developments take place automatically" (Audunson and Nordlie 2003, p. 321), or that "[o]ften there is a naïve belief that the technology itself will activate the students" (Erstad 2006, p. 420). Hence, curricula and tools of various kinds (PC, smartphones, Google, databases) may be seen as mediational means from a sociocultural perspective, but without action (or interaction), they will not matter. It is necessary to make a link between the mediated means, action and the sociocultural setting (Wertsch 1991, p. 121). The next section will therefore start with a brief introduction to previous research examining curricula on IL, digital competence or ICT, and the role of teachers in teaching this.

2.2 Curricula, and teachers' attitudes and knowledge

Government policies and national curricula on digital skills together with the school environment and individual teachers create frames for determining who is considered to be information literate and how they should obtain this goal. Policy makers' views on ICT and digital skills – here understood as part of IL – are influenced by the views that this is crucial for being able to participate in society and that this must be introduced in schools for the benefit of all. In Flanders, the Dutch-speaking part of Belgium, a regional ICT curriculum has been in place since 2007 where a main goal "is to cope with social inequality in education" (Vanderlinde and van Braak 2011, p125).

Julien and Barker (2009, p. 15) maintain that "despite unambiguous curricular mandates to develop information literacy skills" among high school students in the province of Alberta, Canada, "actual skills are underdeveloped". Teachers may be positive to IL and digital skills but in practice there are nevertheless hindrances along the way. These may be as simple as teachers not being familiar with the curriculum (Vanderlinde and van Braak 2011) or not having an understanding of the complexity of information literacy, not being comfortable with the subject, especially when it comes to the ICT-part of it (Krumsvik 2009) – or simply believing that students already know this simply from being young or that they have learnt it elsewhere (Ladbrook 2010).

Teachers state that the internet and digital text types are useful in instruction or for extending literacy practices but they nevertheless rarely use the internet actively in their teaching and are infrequent users of digital text, hence beliefs and intentions do not coincide with actual practices on the part of teachers (Erstad 2006; Ladbrook 2008; Miller and Bartlett 2012). The reason may simply be that many teachers have not received proper training themselves when it comes to seeking for, and using, information from digital sources, and that teachers continue to work with resources they are familiar with. Moreover, teacher education is still not up to date on the use of new technology (Almås and Krumsvik 2007; Krumsvik 2011).

2.3 What pupils know and do

Teachers and parents may assume that secondary school pupils today are internet-savvy just because they have grown up with computers, smartphones and the internet (Rowlands et al., 2008). The most recent survey on media consumption in Norway shows that in an average week, 96% of 13-15 year olds use the internet privately and 67% use internet in their education. Among 13-15 year olds, 100% have access to a computer at home, 100% have access to the internet, and 92% have access to a smartphone (Vaage 2014). However, even though this age group may be familiar with, and use, tools such as computers and smartphones and have access to the internet on a daily basis, this does not mean that they are internet experts. Rather, they may have quite rudimentary skills when it comes to searching for, using and processing the information they find on the internet (Rowlands et al. 2008; Julien and Barker 2009; Ladbrook 2010).

Research conducted in countries with a similar infrastructure to that of Norway, eg Sweden (Lundh and Limberg 2008; Alexandersson and Limberg 2012) and New Zealand (Ladbrook 2010), shows that the pupils and their teachers face similar issues in the area of new technology and how to use it properly. Ladbrook (2010, p. 67) states that, even though pupils in New Zealand "may be adept in some aspects of Web 2.0 such as social networking, their online information literacy skills are limited." Ladbrook reports on pupils' research strategies on the internet and found that her sample of students in grade 10 "lack ability to interpret, critique and synthesise information" (2010, p. 73). The same is seen in a study from Alberta, Canada, where Julien and Barker (2009, p.15) investigate how students in grades 11 and 12 search for and evaluate information. They maintain that students themselves "expressed confidence in their information finding and evaluation skills" but when further probed, "the students revealed unsophisticated evaluation skills." They underline that the students in their study, overall, "gave less emphasis to the *process* of finding information, than to the end product of the search" (p. 15, emphasis in original). A related problem is the lack of proper instruction, as mentioned above. The pupils in Ladbrook's study underlined that they did not get much assistance from teachers "on how to go about researching topics and developing information literacy skills" as teachers wrongly assumed that they have already received this kind of instruction (2010, p. 73).

2.4 Digital skills in the Norwegian curriculum

In Norway, digital skills is one of five basic skills which are included in the national curriculum in primary and secondary school (grade 1-10) (UDIR 2012). This was introduced with the educational reform in 2006 and from then on, this is considered as important as reading, writing and numeracy. According to Krumsvik (2011, p. 40) this "was an historic event, and never before has digital

competence achieved such a high status in curricula, either nationally or internationally". As such, digital skills are supposed to be included in all subjects on all levels.

Digital skills are defined in the following way by the Norwegian Directorate for Education and Training (UDIR):

> Digital skills involve being able to use digital tools, media and resources efficiently and responsibly, to solve practical tasks, find and process information, design digital products and communicate content. Digital skills also include developing digital judgement by acquiring knowledge and good strategies for the use of the Internet (2012, p. 12).

Further, it is clarified that one sub-group of digital skills is related to searching for and using information, more specifically: "*Search and process* means being able to use different digital tools, media and resources as well as to search for, navigate in, sort out, categorize and interpret digital information appropriately and critically" (ibid. 2012, p. 12, emphasis in original). Other sub-categories of digital skills encompass the ability to *produce*, *communicate* and the development of *digital judgement*.

However, one strand of critique has related to the fact that digital skills seemed to be reduced to "the ability to use digital tools" (Krumsvik 2011, p. 43; Erstad 2006, p. 416; Erstad 2011, p. 300), the technology itself, seeing this as "a skill in handling technological tools" (Erstad 2011, p. 295). Interestingly, quite recently UDIR changed the designation from "being able to use digital tools" to "digital skills", explaining that cognitive dimensions such as attitudes, understanding and communication should be stressed. Teaching digital skills, and relatedly, IL, becomes an all-encompassing concern, putting much responsibility on individual teachers. However, many teachers are not specially trained to teach digital skills (Krumsvik 2011) and school libraries are most often not staffed to be able to offer this kind of instruction, especially not in primary and lower secondary school. Statistics from 2010 presented by the Norwegian Library Association in a campaign in October 2012 show that 6.1 h per week (mean) is allocated to staffing the school library at the primary and lower secondary school levels in Norwegian schools, that 82 % of the persons working in school libraries attend to other tasks in addition to the school library, and that 68 % of the persons working in school libraries are not trained librarians (Norsk Bibliotekforening 2012). The curriculum, on the other hand, places quite broad demands on the pupils when it comes to searching for information on the internet, using and critically examining this information.

3. Material and methods

The research for this study was carried out in late autumn 2012 and early spring 2013 in two Norwegian schools at the secondary lower level while the author worked as a librarian at the nearby public library. The main goal of the study was to examine the pupils' experiences with, and ideas about, information seeking and use of information in school work, especially related to the use of internet. The material that is presented here consists of the results from a questionnaire distributed among 10 classes of high school pupils in two different schools; 5 classes in each school. In one school, all pupils were in 9th grade and in the other school, all pupils were in 10th grade. A total of 217 pupils participated in the questionnaire; this means that about 30 pupils chose not to participate or were not present when the questionnaire was distributed. In addition, six interviews were conducted with pupils that took part in the questionnaire. The study as such cannot claim to be representative of Norwegian secondary school pupils, but the results reveal certain trends that are probably indicative of a general state of affairs in many schools, and not only in Norway.

This study was interested both in a general mapping of how the pupils navigate the internet, what kind of resources they use and how often, and a more indepth examination of how they understand various aspects of IL and digital skills that the curriculum expects them to be familiar with and able to use. The study used a mixed methods approach in order to benefit from being able to elicit general tendencies through a large-scale questionnaire and go more into depth in interviews.

Mixing methods may be done in several ways (Tashakkori and Teddlie 1998) and in this study the questionnaire was distributed first and the interviews functioned as a follow-up method. The rationale for using a mixed methods approach is to attempt to ensure a completeness of data, that is get “fuller” data about the phenomenon we are interested in (Creswell and Plano Clark 2007). To get a more complete answer to the question of how these pupils become information literate, it is necessary to both examine what kind of devices they use, how often and how they interact with devices and other persons related to information seeking, as well as get an understanding of how they talk about IL.

The author approached the teachers of the two schools through their school librarians to ask if they were interested in a crash course in information searching and source criticism with a focus on searching for information on the internet. The author was subsequently invited to teach 5 classes in each school. Before teaching, the outline of the present study was presented and approval to carry this out in connection to the lessons was obtained. All pupils were informed about the purpose of study and that participation was voluntary. The questionnaires were anonymous and cannot in any way be traced back to individual pupils.

The questionnaire was a modified and updated version of a questionnaire used in a previous study (Sundin and Francke 2009) and was therefore not piloted for the present study. The questionnaire was analysed in SPSS using descriptive statistics. The overall purpose of the questionnaire was to examine who or what the pupils interact with when searching for information, whether in digital or print sources, but with a strong emphasis on digital sources. The questionnaire was comprised of 14 questions on information searching related to the use of both internet and libraries. These questions mapped the pupils’ use of devices, and interaction with internet resources as well as with others in the process of information seeking, such as teachers, parents, peers and librarians. Some of the questions mapped frequency of actions
: How often do you use the internet for school work in an ordinary week? Here the pupils had to choose one of several fixed alternatives on how many hours, or how often. Several of the questions had multiple response alternatives in order to map the variety of sources or partners in information searching and not force the pupils to choose only one option. These questions were of the following type: What do you use the internet for in your schoolwork? If you get a school assignment you have to solve by searching for information beyond schoolbooks, where/to who do you turn first to find out more?

Finally, there was one open-ended question asking whether the pupils believed there is a difference between the information they find on the internet and the information they find in books, and also explain what they believe is the difference. The open-ended question was coded according to a number of themes developed from reading the answers, that is post-coding the information in order to improve the measurement validity (Seale and Kelly 1998). These answers could either say something positive or negative about either books or the internet, such as “information from the internet is easy to use” or “information in books can be trusted“, or they could cover several themes at the same time, for instance “information from the internet is updated but information from books is safe to use”. In total, 19 different themes were identified and then grouped in three overarching categories: positive to books, positive to internet and ambivalent.

After the analysis of the questionnaire, interviews were carried out with six pupils who had participated in the questionnaire. The pupils were approached during and after the teaching sessions. Several persons expressed an interest in participating in interviews and they were given the author’s contact information. However, only five pupils actually contacted the author afterwards and only two pupils were interviewed as a result of this recruitment. Some pupils who took contact details and were interested in participating in interviews, did not find the time and dropped out. One pupil spent some time at the library and was approached while being there. Finally, the last three pupils were recruited after a meeting at the school library where the author approached the school librarian and was introduced to a group of pupils. They had all participated in the questionnaire and the teaching session and were thus familiar with the author and the topic. Three of these wanted to participate and were interviewed together. Thus, two of the interviews were carried out in small

groups; one with three persons and one with two persons. These group interviews took place at the two schools, just before and after school, at a quiet and undisturbed place. A benefit of conducting group interviews was that the pupils discussed among themselves or elaborated on others' statements. The third interview took place at the nearby public library. The pupils received written information about the study and contact details in case of further questions. All interviews lasted between 30 and 40 minutes and were recorded. Of the six interviewees, there were two boys and four girls, two pupils from grade 9 and four pupils from grade 10.

The material from interviews was transcribed by the author and analysed according to themes that emerged in the material on topics such as: information seeking and use; social aspects of information seeking; use of different sources; and the library. Quotes from the interviews are provided to ensure some level of transparency for the reader; also in order to show how meaning is constructed in connections between the theoretical point of departure and the empirical material, of which the author is a part (Kvale and Brinkmann 2009). All names are pseudonyms.

3.1 Research bias and methodological concerns

Both the questionnaire and the interviews took place in the school environment and these circumstances need to be discussed. The pupils filled out the questionnaires before the lecture, but the setting itself and the author's presence as both instructor and librarian may have influenced the way they answered the questions. The same obviously goes for the interviews where the author also held several roles at the same time as librarian, instructor and interviewer. It was stressed that they should not provide the "correct" answers, but again, the setting may of course have influenced them. However, the variety of answers on the open-ended question indicates that the pupils were far from uniform in their beliefs.

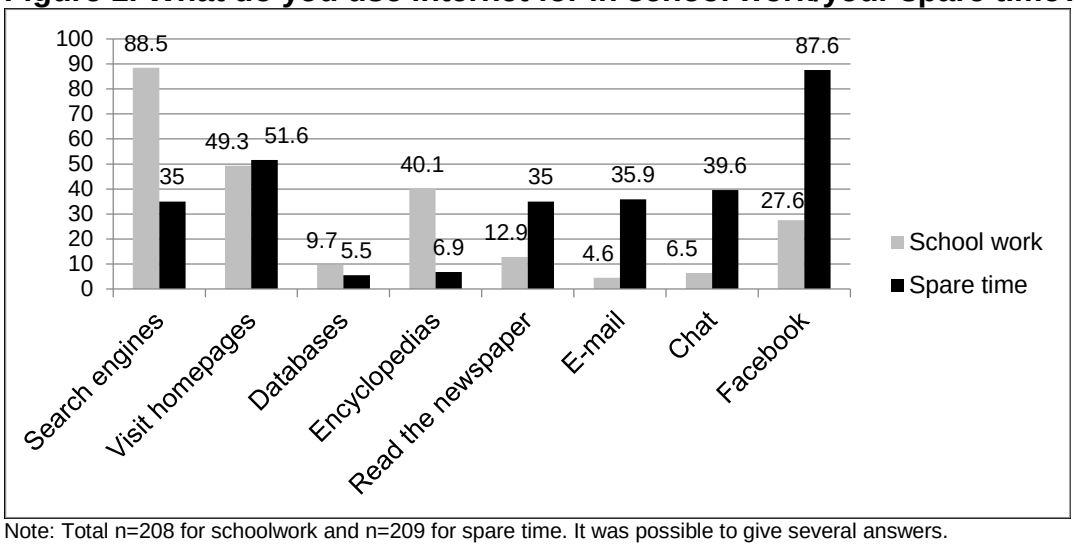
Regarding the interviews, another possible bias may arise from the fact that the pupils were well aware of the subject before coming to the interviews, and those volunteering to be interviewed may have had an extra interest in, or greater familiarity with, the issues this study was interested in. However, this may also be beneficial since they are in a better position to discuss these questions. Obviously, no generalisations can be made on the basis of these interviews, but they give valuable insights. At the same time, this does not represent all there is to this issue. The voices of adults within the school environment, whether teachers or librarians, are absent. Thus, this study does not claim to be able to say anything conclusive about how they teach digital skills or ILin these two schools. Yet, one may assume that the pupils' perspectives at least tell us a part of the story, and that this is an important part, even though it is only one side to the story.

4. Findings

The following section will present results from the study focusing on how these pupils talk about certain aspects of IL related to how they search for information. This will be followed by a discussion on in what way they become information literate and what kind of practices they reproduce when talking about information searching and use.

First, there will be a brief outline of the pupils' internet habits. The pupils that participated in the survey were familiar with, and experienced in, using digital devices: they all reported to use either computers or smartphones/tablets for searching the internet. They reported use of the internet for school work to a quite modest extent: 33.7% stated they use internet 1-2 hours per week, 20.7% less than 1 hour per week, and 23.6% do not know. In their spare time, on the other hand, a different picture emerges. Almost one-third reports to use the internet more than 20 hours per week and an additional 22% use it 11-20 hours per week for spare-time activities. They also use the internet for different purposes when it is related to school work or spare time (see Figure 1).

Figure 1. What do you use internet for in school work/your spare time? (%)



Note: Total n=208 for schoolwork and n=209 for spare time. It was possible to give several answers.

4.1 Whose responsibility to become information literate?

If we assume that meaning making take place through dialogue or interaction with others, and that using previous experiences and building on these is a way of learning (Säljö 2000; Furberg and Arnseth 2009; Alexandersson and Limberg 2012), it is necessary to discuss how the pupils experience the demands of the school system or individual teachers. It is therefore important to focus on the kind of support the pupils receive in order to learn, to use their previous experiences and to create new meaning related to the acts of information seeking and using. Other studies have confirmed that teachers believe that their pupils are competent internet users and can use the technology but that the pupils nevertheless are not necessarily adept at actually searching for and digesting the information they find online, and that their critical literacy skills are poor (Rowlands et al. 2008; Ladbrook 2010, p. 73). Hence, they need instruction. Recent research reports suggest that the amount and kind of guidance or instruction in Norway mostly seems to depend on individual teachers (Krumsvik et al. 2013). This is in many ways quite in line with the Norwegian curriculum where responsibility to teach digital skills is not placed with a specific subject but is related to many different subjects. In this way it becomes everybody's (and in the worst case – nobody's) specific responsibility.

The investigation showed that some of the pupils know they have had training in information searching, but many of them have not or do not remember. Table 1 indicates why the pupils seem quite uncertain regarding questions about information seeking and demands related to this. Only 21.4% of the total number of pupils who answered the question confirmed that they have been taught information searching, while nearly half of them are uncertain. Hence, even though they have received instruction in information searching, it may not have been clearly communicated what this is about and what they may use it for. It has clearly not made a lasting impression.

Table 1. Have you received instruction in information searching? (%)

Yes	No	Do not remember	Total
21.4 (n=43)	35.5 (n=71)	43.3 (n=87)	100 (n=201)

In Julien and Barker's study 41% of the students "state that they learned how to select information for science classes by experience with school projects" while 28% learned this "through non-academic personal experience" (2009, p. 14). Another important finding in previous research is that "[r]esults suggest that students develop strategies to gather internet information, yet, as their teachers thought, they lack ability to interpret, critique and synthesise information. Teachers

assume that these skills are going to be, or have been, taught ‘elsewhere’. According to the students, they are not taught at all” (Ladbrook 2010, p. 73).

Pupils at secondary level in Norway are expected to use information from the internet in addition to books for school assignments, and they do. When asked about where they turn to search for information for a school assignment (apart from schoolbooks) 53.6% of those who answered (n=211) say they use the internet only. Some of the interviewees responded in the following way to a direct question about whether they have had instruction in searching for information on the internet:

> *David: We’ve had, like, what we should not do. [The teacher] told us about some pages we should not visit when we search for things, and this is especially these pages made by pupils, Daria[see Resources] or something, where people post their essays, their grades and stuff, because it is very uncertain which sources they have used and then the information is not always so good. He has told us this many times, that we should not use these pages/…/*
> *Eve: That is, they are very preoccupied with us using sources, they are. I think we’ve had this paper, on how to use sources. They are very preoccupied with this.*
> *The interviewer: Do you remember anything this paper says?*
> *Eve: Ehhh, yes, that you should provide the link or something like that.*
> *David: In the end of a presentation or an assignment, you are supposed to show which sources you have used to find this information. But they have said many times, that you should use common sense. Think about whether the information seems realistic and double-check with other pages. And some things like that.*

These two pupils attend different classes and have different teachers. One of the pupils remembered what they have been told to avoid, which sources or webpages to be careful with, but does not say much about what they have learned to do. The second pupil remembers that they have received a paper with instructions on it, but does not remember in detail what these instructions are, except that they should write down the actual reference. This triggers the first pupil to remember some other rules they have learned: to use common sense and verify with other sources.

It is noteworthy that the interviewees do not refer to checklists or guidelines for source criticism like the ones Sundin and Francke (2009) discuss, but this may be what is on the paper Eve mentioned. Pupils indicated in interviews that their teacher has instructed them to judge whether something seems “realistic” or “logical”, and thus relying on the pupils’ ability to be critical and “alert” in their interaction with sources and information on the internet. Possibly this may be putting quite big demands on pupils who report to not have received very much formal instruction. Several of the interviewees claimed they cited sources for the teacher’s sake, in order that the teacher was aware that they had not made up their facts. In general, it is possible to infer from interviews that the pupils do not learn information searching primarily through the transfer of practical knowledge and social interaction where the teachers are involved in the entire process of searching and using information, discussing and explaining what they should do, how they may search, or how they may judge their sources.

4.2 Practices of ambiguity

The issue of evaluation of information from different sources was approached by an open-ended question asking whether the pupils considered that there is a difference between information they find on the internet and the information they find in books and, if yes, what this difference consists of. 64% of the pupils completing the questionnaire answered this question with valid answers (Valid answers n=138, total answers n=171.). The answers were first categorised according to 19 different themes and then divided into the three abovementioned categories: positive to books, positive to internet and ambivalent. There was a clear print-digital dichotomy with 38.4% (n=53) in each of the categories positive to books and positive to internet, similar to what has been reported in previous research (Sundin and Francke 2009). Sundin and Francke (2009) interpret this kind of print-digital dichotomy as a result of teachers and librarians having transferred a “lack of authority”

(cf. Wilson 1983) to web resources since pupils are so often reminded they should establish the credibility of these sources. In addition to this more general state of ambiguity, 23.2% (n=32) even more clearly represented a practice of ambiguity as they were positive and/or negative to books and internet at the same time. This seems to reflect the demands on digital skills or general IL in school where the actual school practices promote different ways of relating to printed versus digital information at the same time.

The answers to this open-ended question demonstrate that a large part of the respondents clearly have a relation to the issue of source criticism. Their opinions on the matter indicate that many are aware that this is a concern and have reflected upon it, yet it seems that even though they are aware and know about it, they do not (have to) act upon it. The fact that there is no consensus is interesting since this demonstrates that there are various practices that come together and are negotiated. On the one hand, the pupils express that they are aware that you should be sceptical towards information on the internet because you can be uncertain of authorship or the stability of the text. Learning to be careful with web resources underscores printed information as credible and reliable as such, as seen in the following examples:

> *Yes, since the book has an editor and you are not allowed to print whatever, I believe the book is more credible and sustainable (9th grade).*
>
> *You may always trust what is written in textbooks, you know it is true. Information you find on the internet you may not always trust, it could be it is not true (9th grade).*
>
> *A lot of digital information can be erroneous since anybody can edit and post information (10th grade).*

On the other hand, the internet and its reservoirs of information also benefited from a comparison with printed text since the texts on the internet are dynamic and may easily be updated:

> *Books are often more than a year old and contain old information, while the internet is always updated (10th grade).*
>
> *It may be newer information on the net because there for instance news pages are constantly updated, while a newspaper stays the same (9th grade).*

Some also pointed out that they found information on the internet easier to deal with, yet at the same time representing ambiguity concerning how to relate to the sources:

> *There's a difference I guess, but I think it's easier to locate [information] on the internet because it is easier to understand. BUT it is often not true, what is written on the net, but books are safer sources (10th grade, emphasis in original).*

The instability of digital texts is considered both positive and negative; positive because the information is constantly updated and negative because authorship becomes unclear. Vice versa, the stability of the printed text is also considered positive and negative; negative since the information is considered to be outdated and positive since it is printed and thus cannot be arbitrarily changed. Further, the name of an author is easily found, and the fact that the book is published by a publishing house gives it credibility and makes it trustworthy as seen in some of the examples above.

However, this print-digital dichotomy is not absolute; some kinds of digital encyclopaedias are treated as printed text. The pupils in the current study stated to most often use Google to search for information on the internet, but they would also go directly to the two web-based encyclopaedias *Wikipedia* and *Store norske leksikon* (SNL) (see Table 2).

Table 2. If you search for information on the internet, where do you search more specifically? (%)

Google	Wikipedia	SNL
47.7 % (n=102)	35.5 % (n=76)	19.2 % (n=41)

Note: It was possible to give more than one answer.

It seems that the use of these encyclopaedias, especially *Wikipedia*, becomes restricted in certain ways. The teachers had not necessarily explicitly forbidden the pupils to use *Wikipedia* but the pupils were nevertheless aware that *Wikipedia* was not considered "an approved" source, not even in school:

> *Andreas: Wikipedia is not really a source, everybody may change it. Wikipedia – in secondary high school I think, Wikipedia is not an approved source – or is it at university? At a certain point in time Wikipedia is not an approved source, then you have to refer to the pages where Wikipedia gets its sources, the references at the bottom of the page.*

The pupils' practices when interacting with *Wikipedia* versus *SNL* was a recurrent theme in all of the interviews, when they are uncertain they check if the same information can be found in both places (Sundin and Francke 2009; Julien and Barker 2009). When probing some more concerning the use of *Wikipedia*, one of the interviewees continued with a more indepth description of the rules of conduct he has learnt, being critical of the information, or "alert" as he says. One person made a clear division between schoolwork and spare time when it came to the use of *Wikipedia* and the other digital encyclopaedia, *SNL*. As seen in Figure 1 (above), pupils use encyclopaedias more in relation to schoolwork than in their spare time, but yet another distinction was made here. Searching for information for a school assignment seemed to be interpreted by the interviewee as searching for "facts" or "correct information" and in this area *Wikipedia* is regarded as unsafe. The interviewees would then rather turn to *SNL* – but on quite pragmatic grounds.

> *Bella: …and it could be I use Wikipedia when it is only spare time because then it doesn't matter whether it is correct or not, to me. But when it comes to school, I'd like, I use Store norske leksikon, because I'd like to get better grades.*

The main reason the interviewees claim not to use *Wikipedia* is that it is an example of the "typical" internet source they have learnt to be sceptical towards. *SNL* on the other hand, is based on a previously printed encyclopaedia and has named editors (Store norske leksikon [n.d.]). It is thus more similar to printed sources, and it is also endorsed by the teachers. However, they explained that they nevertheless prefer *Wikipedia* since it is easier to read and use. This thus represents another example of the practices of ambiguity.

4.3 Alternative meaning making?

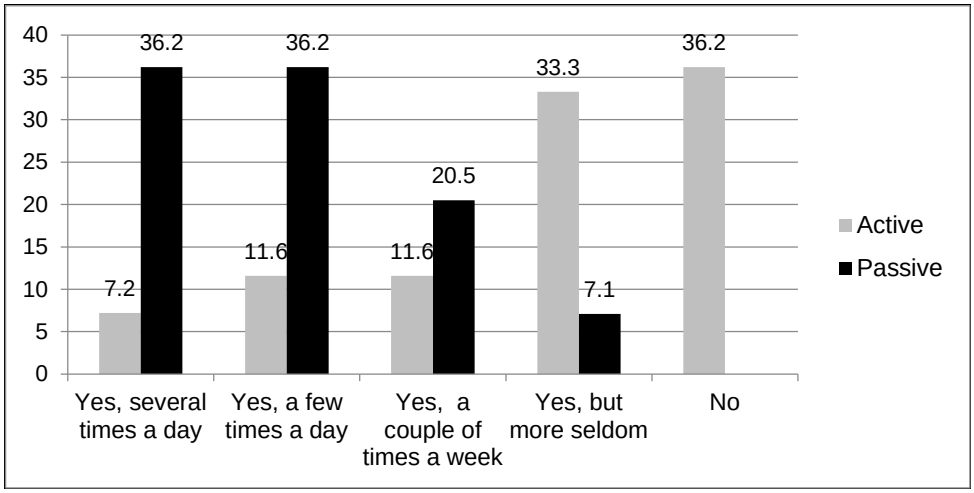
Even though it was not always made this explicit, the pupils in general seemed to trust books/printed information *as such*, while it was the other way around with the internet. A named author equals quality, the fact that "everybody" or "anyone" can post or edit information on the internet is perceived as negative. However, the opposite could also have been the case: that it is considered positive that the internet is open for anybody to share their knowledge, or that one may accumulate new insights and knowledge and create meaning in community building on different persons' experiences. Yet, these pupils do not focus on the opportunities internet offers. The collaborative and democratic aspects of the internet were hardly mentioned and this kind of alternative meaning making was touched upon only by a few pupils:

> *Yes, because on the internet, one may edit [along the way] and it is usually written by persons that may not have studied this, but in books there are experts who know their thing. But also no, because there are many who may know little things that are written on the internet, but not in books. (10th grade).*

Yes, because on the net there are several/different answers because everybody may post a comment or an article or something like that saying what they believe is correct (10th grade).

It is also clear from the questionnaire that these pupils are not very experienced in sharing or contributing to collaborative pages on the internet. Clearly, the majority of this group may be categorised as "passive consumers" on the internet rather than "active contributors" (see Figure 2 below), as far more visit blogs or various web pages, than actively contribute. They were asked if they visit wikis, blogs, *Flickr*, *YouTube* or similar webpages and how often and if they contribute to wikis, comment on blogs, post photos or films on *Flickr*, *YouTube* or similar web-pages. The former was coded as "passive consumer" and the latter was coded as "active contributor". In addition, on a direct question 14% answered that they have a blog.

Figure 2. Active participants vs passive consumers on the internet (%)



Note: n= 207 "active contributors" and n=210 "passive consumers"

This is interesting because it may also have an impact on how they experience and relate to information on the internet. If they have their own experiences of sharing information, they may be in a different position to judge sources and value the information they find (cf. Erstad 2006). If they are not used to participating on, for instance, collaborative pages, they may not be aware of the internet's merits, but rather be affected by warnings about negative sides to the internet's possibilities for openness and co-creating. Moreover, if teachers are not familiar with such participatory digital tools, they will probably tend to reproduce the scepticism as part of school practices, and this may even make potential out-of-school experiences less relevant.

4.4 Performing relevance judgments and source criticism

In spite of a curriculum inducing pupils to become information literate in terms of being able to judge relevance and credibility in quite sophisticated ways, the pupils in my study came across as quite pragmatic and result oriented. Yet, this is what being information literate in the school context is about. So, it is possible to conclude that these pupils are information literate – perhaps not according to the curriculum or a standard definition of IL, but according to how they experience what is demanded or expected from them.

The way these pupils evaluate relevance – and implicitly have learnt to do it, based upon their experiences – will mainly focus on whether the information is easy and quickly accessible, and that it is easy to read. If we consider relevance evaluation in a meaning-making perspective, where meaning making is seen as a fundamental human activity that concerns how to create unity, explain and understand one's surroundings, it is clear that it may be challenging to create meaning beyond more basic "fact-finding" when the pupils' experiences tell them they should find the "correct" information quickly and easily. This part of the school practice reinforces the meaning

making that happens in the school environment in relation to searching for and using information. This is in line with findings in Julien and Barker (2009, p. 14) who found that students in their study assess relevance "according to whether the information found answered the task question to be addressed". However, as Alexandersson and Limberg (2012, p. 140) point out, search for facts in itself must not be negative, it may also "form the basis of a deep learning process."

Some of the students interviewed indicated that when they were supposed to write an assignment in which they should compare two countries, the teachers recommended a webpage called *Globalis* (FN-sambandet 2014). This is a web resource created and maintained by the United Nations Association of Norway using information from UN organisations (Similar pages with the name Globalis are found for all Nordic countries but not for other European countries). It is a source of rich information, perfectly laid out for school pupils looking for information on countries to compare. This is an example of how these pupils may act information literate by going online, searching for facts on this particular website, using digital information to present this in for instance a power point-presentation to their teacher or peers. However, what they do not learn from such assignments is to actually search for information in different sources, evaluate and choose between sources and engage in source criticism. With resources such as *globalis.no*, source criticism in some sense becomes meaningless (even though it is of course possible) as this information is in fact pre-approved. In that sense it becomes a digital version of the printed information that the pupils experience as trustworthy and reliable, the same way *SNL* is. This kind of practice may also explain the absence of the abovementioned checklists; they are simply not much needed.

Of course, this is not the only example of how these pupils use the internet in relation to school work, but in the interviews the pupils did not give any examples of how they would actually work with source criticism specifically. An assignment like the one where pupils should compare two countries relates to only a part of the digital skills in the national curriculum. Becoming information literate in terms of achieving digital skills the way the national framework for basic skills describes this may be difficult to achieve if pupils are not taught this through dialogue and interaction with other persons.

Hence, here we may notice a lack of the kind of meaning making processes where meaning is dialogically constituted in specific practices and meaning making involves complex interactions (Furberg and Arnseth 2009). This also coincides with what Alexandersson and Limberg have observed in their research, underlining that the use of search tools and technologies trump other aspects of using information such as "critical evaluation of sources and the construction of meaning from information" (2012, p. 146). The empirical material demonstrates how these pupils have learned to act information literate but not necessarily in the sense that the curriculum anticipates. As in previous studies, we see that the pupils are adept at using technical devices, but are less certain when it comes to other aspects of what the Norwegian authorities have defined as having digital skills: being able to use digital tools efficiently and responsibly, as well as find and process information, communicate content, and "acquiring knowledge and good strategies for the use of Internet" (UDIR 2012, p. 12).

4.5 Key findings

This study set out to examine how secondary school pupils aged 14 to 16 years old become information literate in a school context. Previous studies have focused on how learning and meaning making is a result of interaction (Säljö 2000; Lundh and Limberg 2008; Furberg and Arnseth 2009; Francke et al. 2011; Alexandersson and Limberg 2012). This means we should not see learning as isolated from the setting where it takes place, neither from the practices that are found in a given setting, nor from the various artefacts that may be part to these contexts. Various aspects of information literacies are not learnt in isolation but rather through dialogue and cooperation (Alexandersson and Limberg 2012; Kulthau 2004).

Not many of the pupils remembered having received instruction in information searching. When they talked about the teachers' demands on, for instance, source criticism or how to perform relevance judgment, these demands seem to be rather unspecific, leaving much to the pupils themselves. The pupils have learnt to be sceptical about using sources on the internet, but at the same time, they endorse these sources since they are faster and easier to use. They do have a relation to the issue of source criticism, but in practice, they are quite pragmatic when it comes to searching for information and using this for school assignments. One reason may be that even though the curriculum sets forth that pupils should be able to use a variety of sources in a critical way, discuss the sources and refer to them, the actual practices in school also direct the pupils towards working in pragmatic ways.

Lack of dialogue and conversation means a lack of possibilities to share experiences and co-create new meaning. An alternative to the practices outlined here would be to discuss the information itself, how and where it was found, why one chose one source and not the other, and which new perspectives some sources add to the question one has chosen to examine. The result of this lack is that pupils do not learn to interact with information in a creative and critical manner, and instead they learn to become information literate mostly in a most pragmatic and instrumental way. Yet, one may nevertheless say that these pupils are information literate within the school practice the way they experience these. This results in practices of ambiguity as observed in this study where pupils prefer easy accessible information on the internet while at the same time being sceptical towards this source of information, or distinguishing between sources used for school work and for their spare time.

5. Conclusion

The practices of information searching and using outlined in this study indicate that there are probably not any clear or transparent rules of how to perform certain aspects of information literacy, such as source criticism and relevance judgment, in these schools. The pupils have arenas where they may act information literate for instance through searching for facts on the internet. Even though this may not be all the national curricula intended, they nevertheless navigate within the frames presented to them by teachers and the school system, and the way these may understand the demands the curricula puts forth. As critics have pointed out, the focus of the Norwegian curriculum is mainly on technical skills and less on understanding and communication, and this seems to be reproduced in the practices of the pupils participating in the present study.

However, it is necessary to remember that the pupils may have thought differently about this issue if they had not been questioned by a librarian – representative of the world of books – sitting in a classroom ready to be taught source criticism. Perhaps the setting in itself creates this bias where they clearly reproduce the school practices; that is being sceptical towards the internet and the openness of the internet. Moreover, this study is limited in the respect that it focuses only on the pupils. Further research in this area should involve teachers and school librarians in order to present other sides to the story of how one becomes information literate in Norwegian schools at this level.

One of the implications of this study is that it is necessary to go beyond national curricula and examine the way IL or digital skills are actually performed in schools. This may reveal that there is a gap between curricula and school practices that needs to be filled, and in that case librarians should aim to fill this gap the same way as has been done in higher education (HE). The study demonstrates that there is perhaps a need for librarians from outside the educational sector, fpublic libraries, to be more proactive and seek to use their competence outside the walls of the public library. This is especially important in contexts like the Norwegian one, where school libraries in primary and lower secondary school are not sufficiently staffed to take over instruction in IL or digital skills if teachers do not do it.

If the educational sector is serious about wanting to strengthen what is called digital skills, the educational sector should also seek to ally itself with librarians. Moreover, it might be useful to lift the focus from the narrower digital skills which too easily may be interpreted to refer to technical aspects only. Where well-equipped school libraries are missing and teachers do not have the necessary training, skills or interest to attend to instruction in IL, there is need for more cooperation between various types of libraries, both school libraries and public libraries, as well as with teachers and the teacher education. Here, librarians may need to be more proactive in proposing to assist the educational sector by focusing more on general information literacies. Thus, public libraries should also aim to consider how this issue can be solved in the best way for pupils in primary education as well as for learners of all ages by working together.

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Resources

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The study discussed in this article and the tools used (the questionnaire, the interview guide and more information on the various themes and how the answers were categorised) is discussed in more depth in Søvik 2013 (Swedish only):
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